WAVETEK

INSTRUCTION MANUAL

MODEL 2407

SIGNAL GENERATOR

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10/90
Manual Part No.
6510-00-0105

1.1.4 AutoCal®/DIAGNOSTICS

The Model 2407 utilizes a unique AutoCal® routine to perform a quick and easy almost completely automatic self-calibration. The routine is software controlled, menu driven, and activated from the front panel. A variety of other menu driven diagnostic/control programming aids are standard with the 2407.

1.1.5 STORED SETTINGS

Nonvolatile memory locations allow up to 16 complete front panel settings to be stored and recalled in any order. This storage permits fast and accurate recall of frequently used settings.

The 2407 powers up with the same settings present when power was removed, except the RF output will be off.

1.1.6 ERROR INDICATORS

The 2407 front panel display indicates the following error conditions:

- A control microprocessor communication failure
- An unlocked condition in the phase locked loop circuitry
- An unleveled condition in the RF output leveler circuitry
- A tripped RF circuit breaker
- Deviation meter errors

1.2 SPECIFICATIONS

1.2.1 FREQUENCY

Range	10 kHz to 550 MHz
Resolution	10 Hz; digital readout
Stability, 0-50° C	.0005% (5 ppm)
Stability, Aging	<2 ppm/year
Switching Time	200 ms (± 100 Hz of final value in CW and for changes <10 kHz in FM); typically 100 ms
Reference	
Internal	10 MHz
External	Accepts 10 MHz or 5 MHz TTL compatible

1.2.2 RF OUTPUT

Level Range	+13 to -127 dBm (1 volt to 0.1 microvolt)
Level Resolution	0.1 dB
Level Accuracy	±1.5 dB of set output level
Impedance	50Ω
Output Connector	Type "N", female
SWR	<1.3:1 at RF outputs below -7 dBm

EMI/RFI Leakage	<1 μV into a 2-turn 1 inch diameter loop held one inch from any surface at 550 MHz
1.2.3 SPECTRAL PURITY	
Harmonics	<-30 dBc for frequencies >10 MHz <-26 dBc for frequencies <10 MHz
Nonharmonics Spurious(>5 kHz from carrier)	<-35 dBc
1.2.4 PHASE NOISE @ 500 MHz	10 kHz offset ; <-100 dBc/Hz guaranteed
1.2.5 RESIDUAL AM	<-60 dBc (50 Hz to 15 kHz post detection bandwidth)
1.2.6 RESIDUAL FM	<30 Hz rms (50 Hz to 15 kHz post detection bandwidth)
1.2.7 MODULATION	
Modes	AM, FM, COMPLEX (EXT AM and INT FM; EXT FM and INT AM)
Internal Source	400 Hz, 1 kHz; derived from frequency standard
External Source AM Mode	10 Hz to 50 kHz, 600 Ω input Input Level 1 volt peak-to-peak into 600 ohms for full scale modulation
FM Mode Ranges	50 Hz to 100 kHz, 600 Ω input 0 to 1 MHz (3-137.49999 and >275 MHz); 0 to 500 kHz (137.5-275 MHz); 0-100 kHz (1-3 MHz); 0-10 kHz (.2-1 MHz)
Deviation Error	±5% of deviation at 1 kHz, excluding residual FM
Distortion	<2%
1.2.7.1 AM CHARACTERISTICS	
AM Frequency Response	10 Hz to 50 kHz, (3 dB BW, 50% modulation)
AM Resolution	.1%
AM Range	0 - 99%
Modulation Accuracy, AM (0 - 90%)	±1% + (±5% of indicated setting) at internal rates
AM Distortion	<1.5%, below 30% modulation <3%, 30% to 70% modulation <5%, 70% to 90% modulation

1.2.7.2 FM CHARACTERISTICS

FM Resolution	100 Hz (deviations <100 kHz) 1 kHz (deviations <1 MHz)
FM Rate	50 Hz - 100 kHz (3 dB BW)
FM Deviation Range (1 kHz Rate)	1 MHz peak (3-137.49999 & >275 MHz) 500 kHz peak (137.5 - 275 MHz) 100 kHz peak (1 - 3 MHz) 50 kHz peak (0.1 - 1 MHz)
Modulation Accuracy, FM	At internal rates, ±5% of indicated setting, excluding residual FM
FM Distortion	<2% at internal rates for deviation <100 kHz, excluding residual FM <0.5% at external rates for deviation <100 kHz, excluding residual FM

1.2.8 FM DEVIATION METER CHARACTERISTICS

Frequency Input	30 to 500 MHz
Input Signal Level	15 millivolts to 5 volts rms
Input Impedance	50 ohms
Measurement Range	0 to 500 kHz
Polarity	Selectable positive or negative
Modulation Rate	100 Hz to 8 kHz
Accuracy	6% of full scale from 100 Hz to 8 kHz

1.2.9. FRONT PANEL CONTROLS

Type	Push-button

1.2.10 REVERSE POWER PROTECTION

Max RF Power	50 W
Trip Level	~ .7 W
Trip Time	Typically <2 mSec
RF Circuit Breaker	Resettable from front panel

1.2.11 STORED SETTINGS

16 Total, non-volatile	Complete front panel settings stored

1.2.12 EXTERNAL REFERENCE INPUT (REAR PANEL)

Frequency	10 MHz or 5 MHz
Required Input Level	TTL compatible
Required Input Impedance	50 Ω
Waveform	Sine or Square Wave

1.2.13 INTERNAL REFERENCE OUTPUT (REAR PANEL)

Frequency	10 MHz
Voltage Out/Impedance	>.5 Vp-p, into 50 Ω

1.2.14 GENERAL

Dimensions	14 cm (5.2 in.) High; 31.75 cm (12.5 in.) Wide; 54.36 cm (21 in.) Deep
Weight	11.79 kg (26 lbs.) net; 13.61 kg (30 lbs.) shipping
Power Requirements	100, 115, 215, or 230 VAC ±10%; single phase; 50, 60, or 400 Hz; 100 watts, maximum
Calibration Interval	After calibration, the Model 2407 will meet each performance requirement within the tolerance specified for a period of at least 12 months

1.2.15 Remote (GPIB) Operation — The GPIB permits remote programming of front panel functions. Command codes conform to TEK codes and formats, Tektronix Standard 80009, Rev. C, 1979.

Interface	GPIB IEEE-488.1, IEEE-488.2
Control	All functions except On/Off
Functions	T6, L4, SH1, AH1, RL1, DC1, DT1, E2, SR1, TE0, LE0, PP0, C0

1.3 OPTIONS

Rack Mount Kits — Wavetek manufactures two rack mount adaptor kits, one without slides and one with slides. The rack mount adaptor kit without slides provides a fixed,

immovable unit mount. The rack mount adaptor kit with slides allows the unit to be pulled out from the rack. Complete installation instructions are supplied with the hardware for either kit.